

μCore

Applications

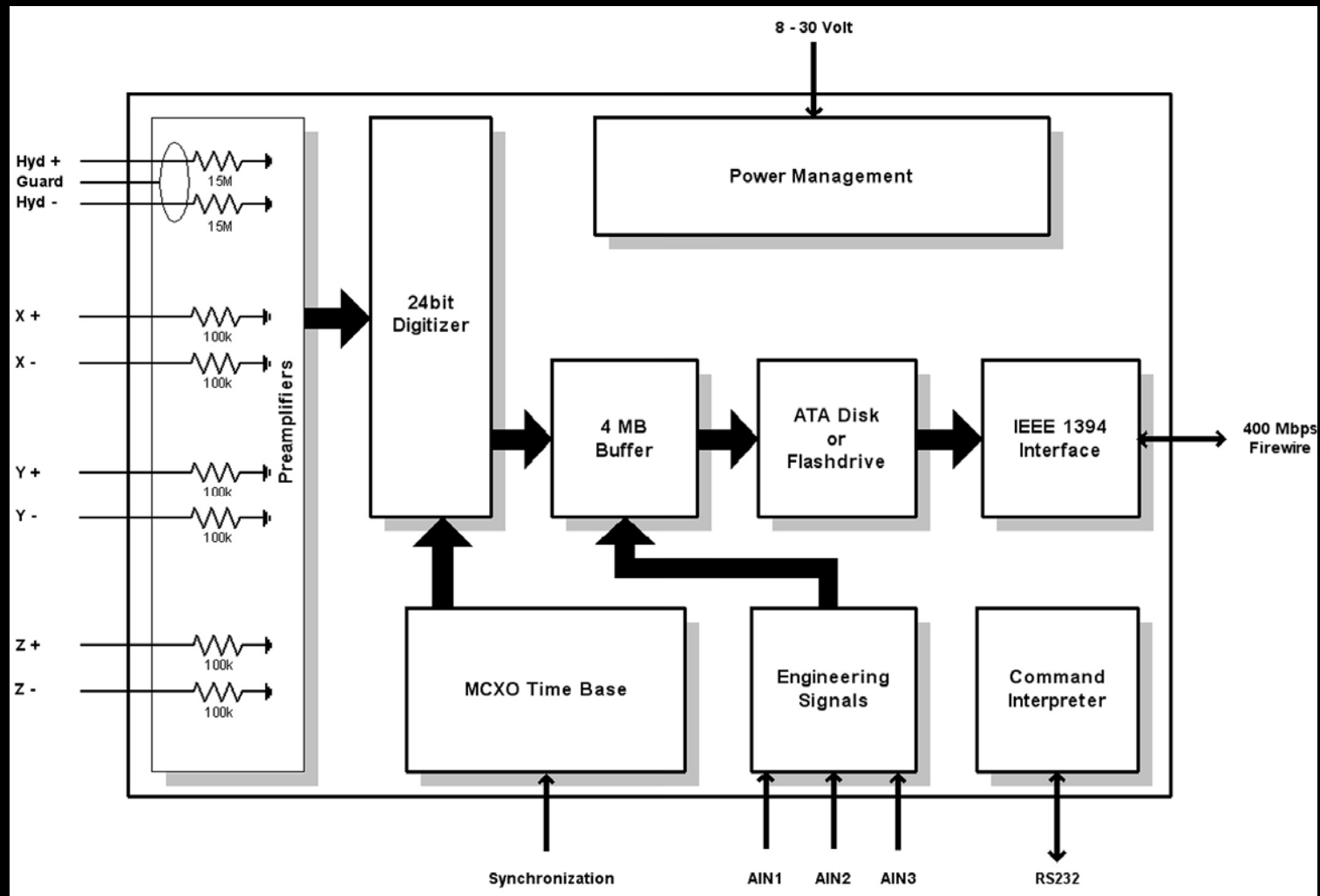
Klaus Schleisiek
kschleisiek at freenet.de

Applications

- **Geolon-MCS** off-shore seismic data logger - **XCF02SVO20C**
- **UWDR** ultra wide dynamic range seismic ADC - **XC2V250**
- **SUGAR** deep towed streamer - **LFXP2-17**
- **KOBS** tsunami detector on fibre-optic cable - **LFXP2-17**
- **CCD1** 250A 10ppm current source - **LFXP2-17**
- **MERLIN** laser frequency reference unit - **A3PE3000**

Geolon - MCS

Off-shore seismic data logger - XCF02SVO20C



Geolon - MCS



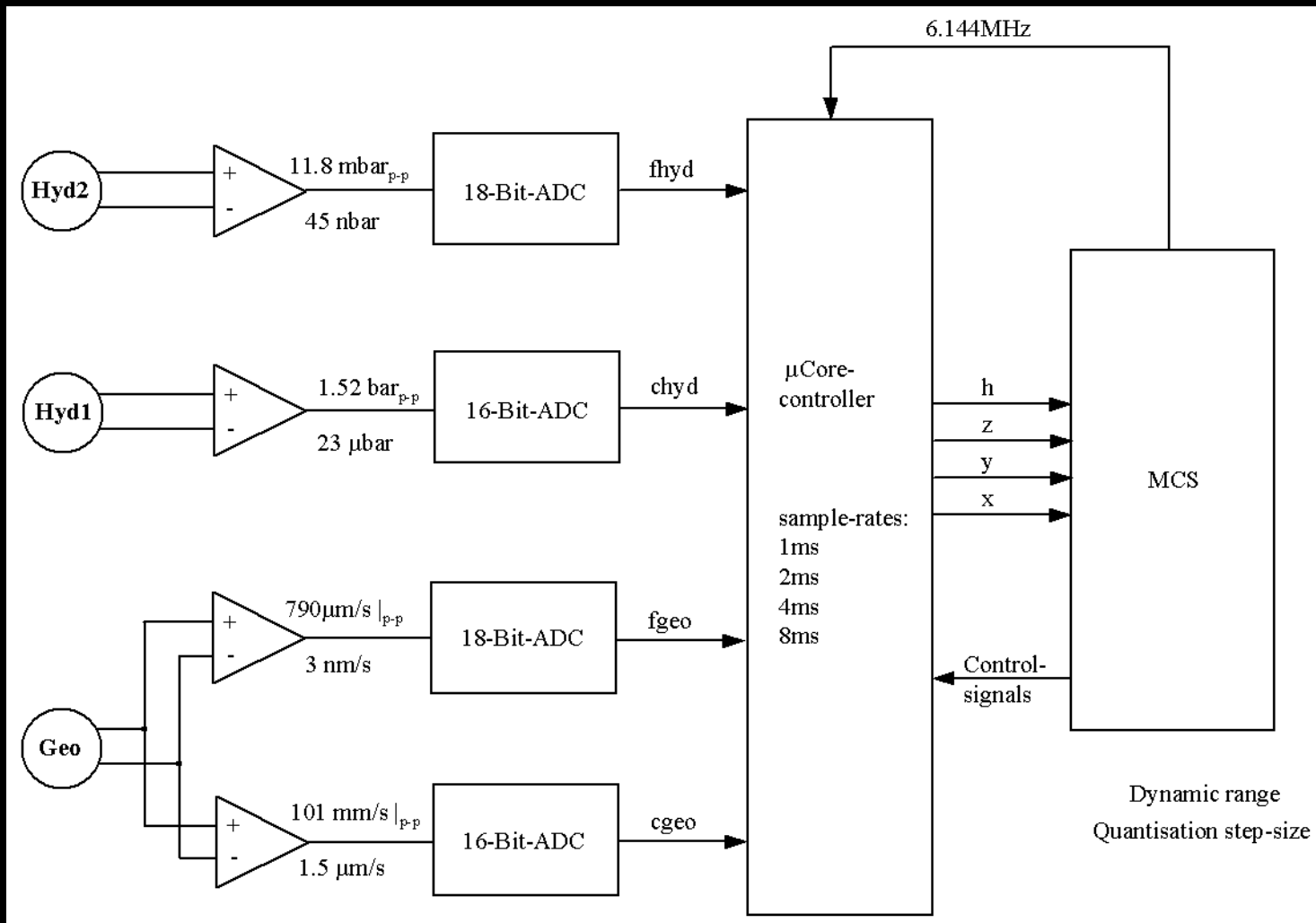
```
: encode ( sample channel# -- )
  under samples + ld >r swap r> !
  under - dup abs
  dup $40 <   IF drop $7f and buf8!
              drop EXIT
              THEN
  dup $1000 < IF drop $1FFF and $C000 or
              buf16! drop EXIT
              THEN
  $80000 <   IF $FFFFFF and $E00000 or buf24!
              drop EXIT
              THEN
  drop $7FFFFFFF and $F0000000 or buf32!
;
```

Realizing **buf8!**, **buf16!**, **buf24!**, **buf32!**, and **delta** as single cycle instructions reduces the computational overhead to 25%

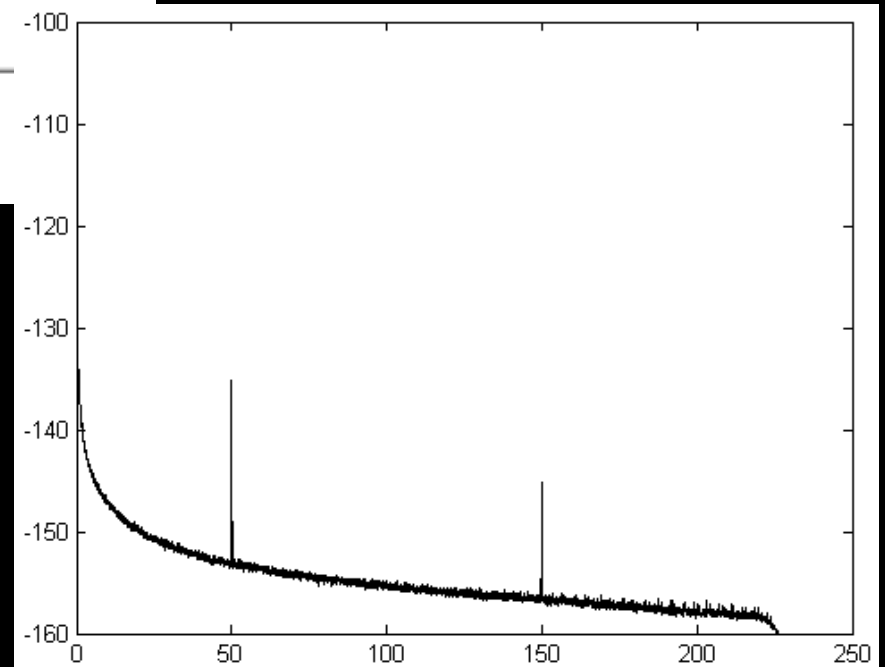
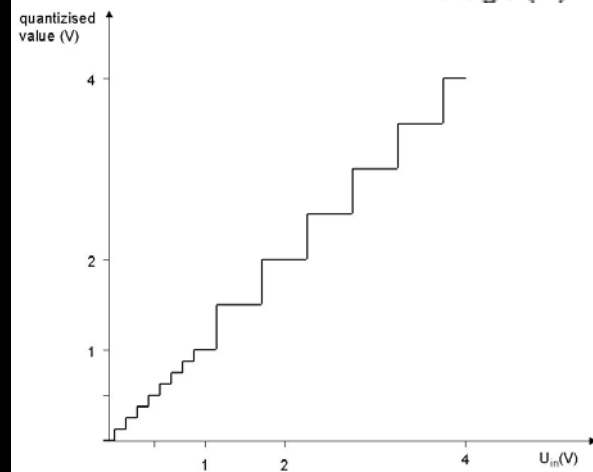
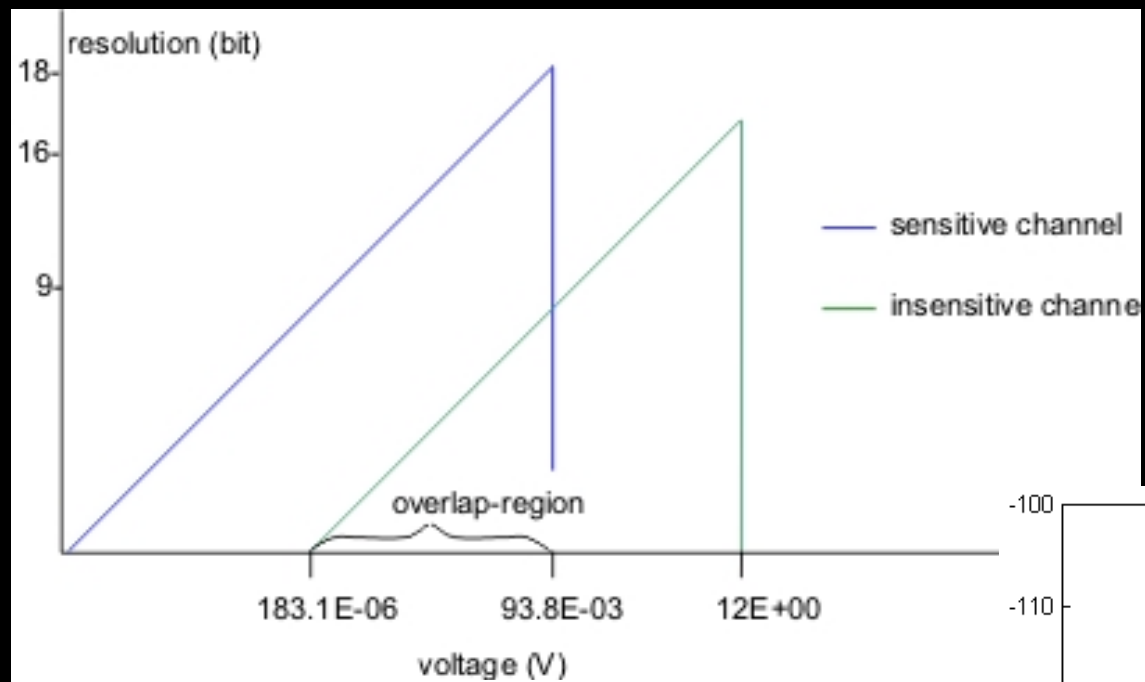
```
: encode ( sample channel# -- )
  samples + ld >r delta
  carry? IF  buf8!
          ELSE ovfl? IF buf32! THEN buf16!
          THEN
  r> !
;
```

UWDR

Ultra wide dynamic range seismic ADC (150 dB) - **XC2V250**

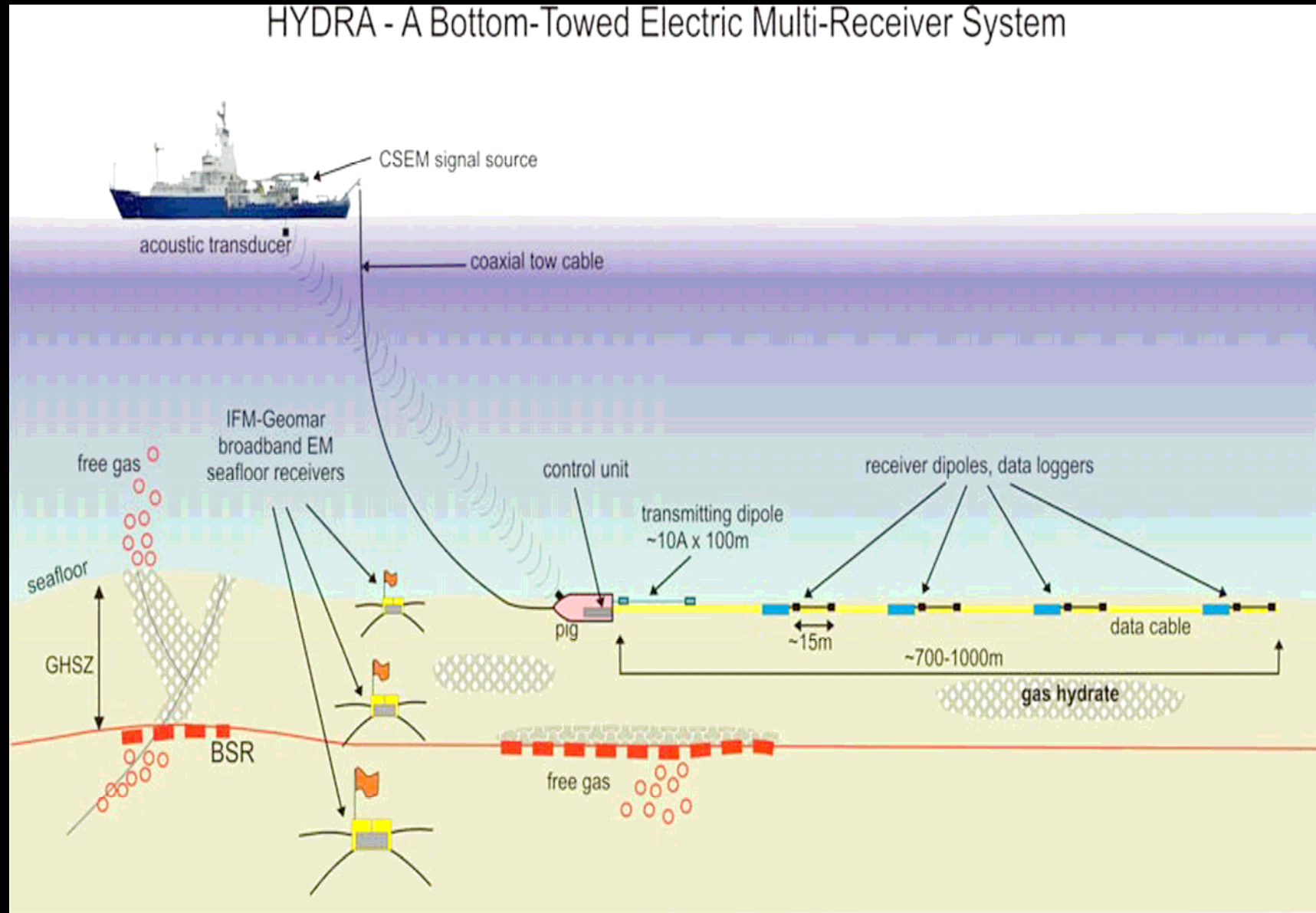


UWDR



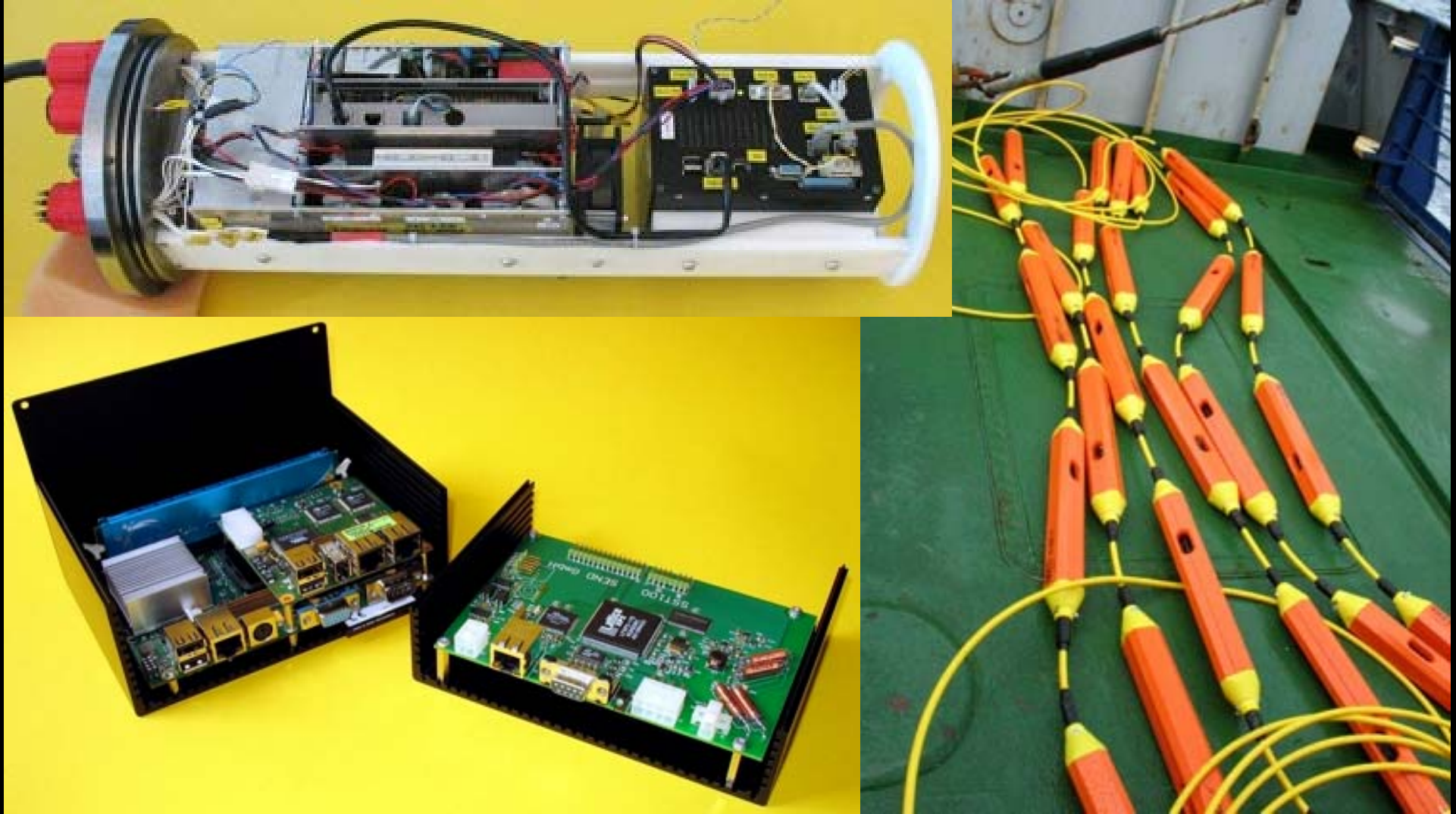
SUGAR

HYDRA - A Bottom-Towed Electric Multi-Receiver System



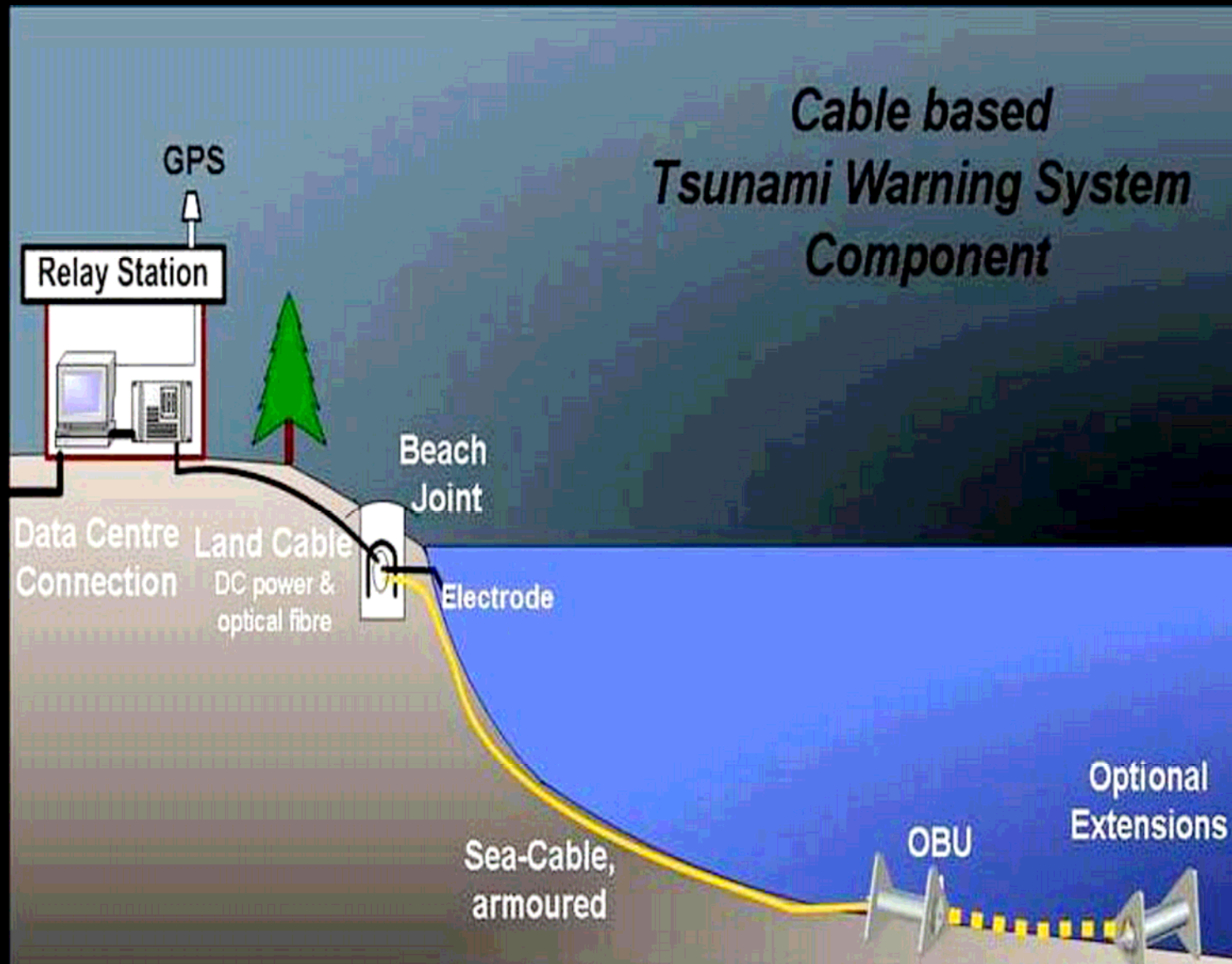
SUGAR

Deep towed streamer - LFXP2-17



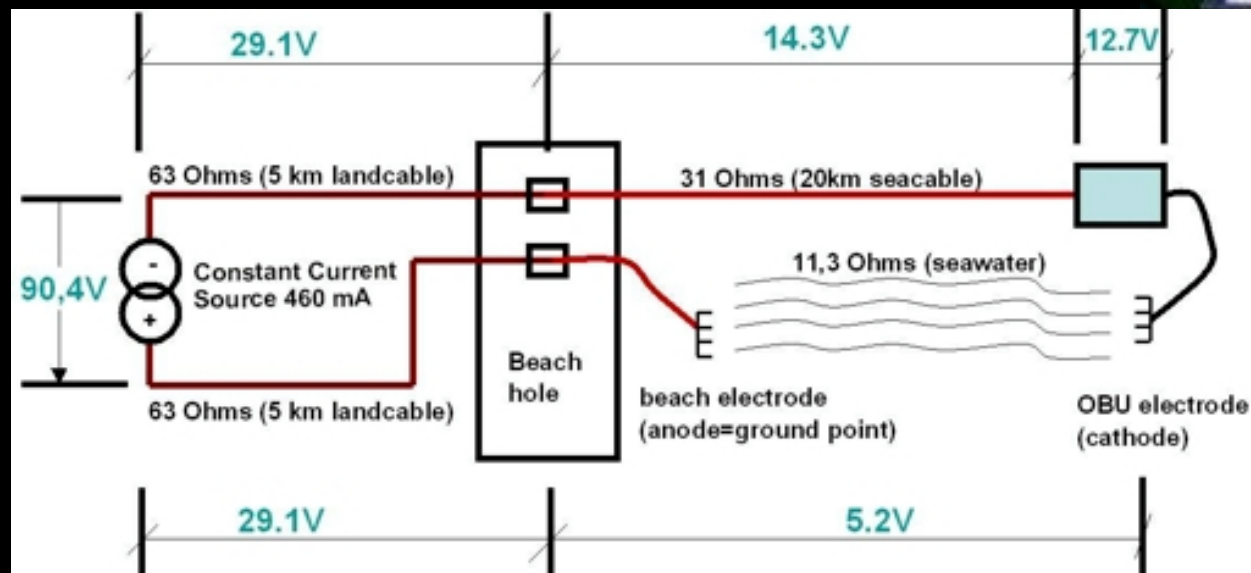
KOBS

Korean Ocean Bottom System



KOBS

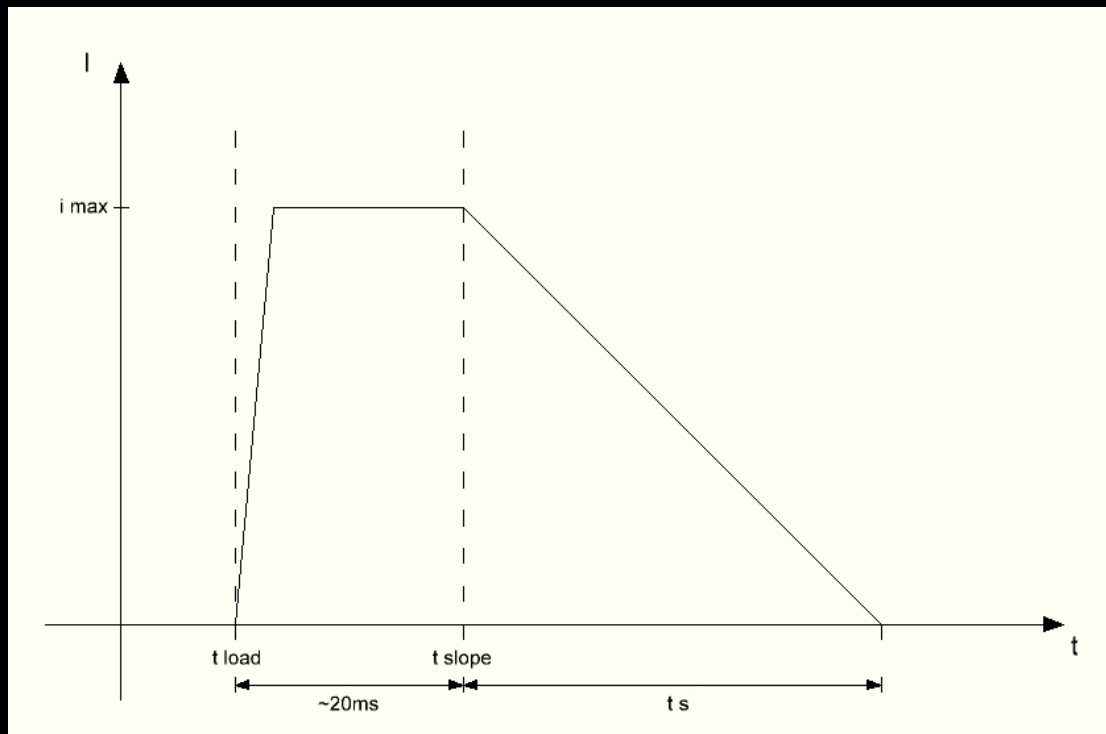
KOBS Tsunami Detector on Fibre-Optic Cable - LFXP2-17



CCD1

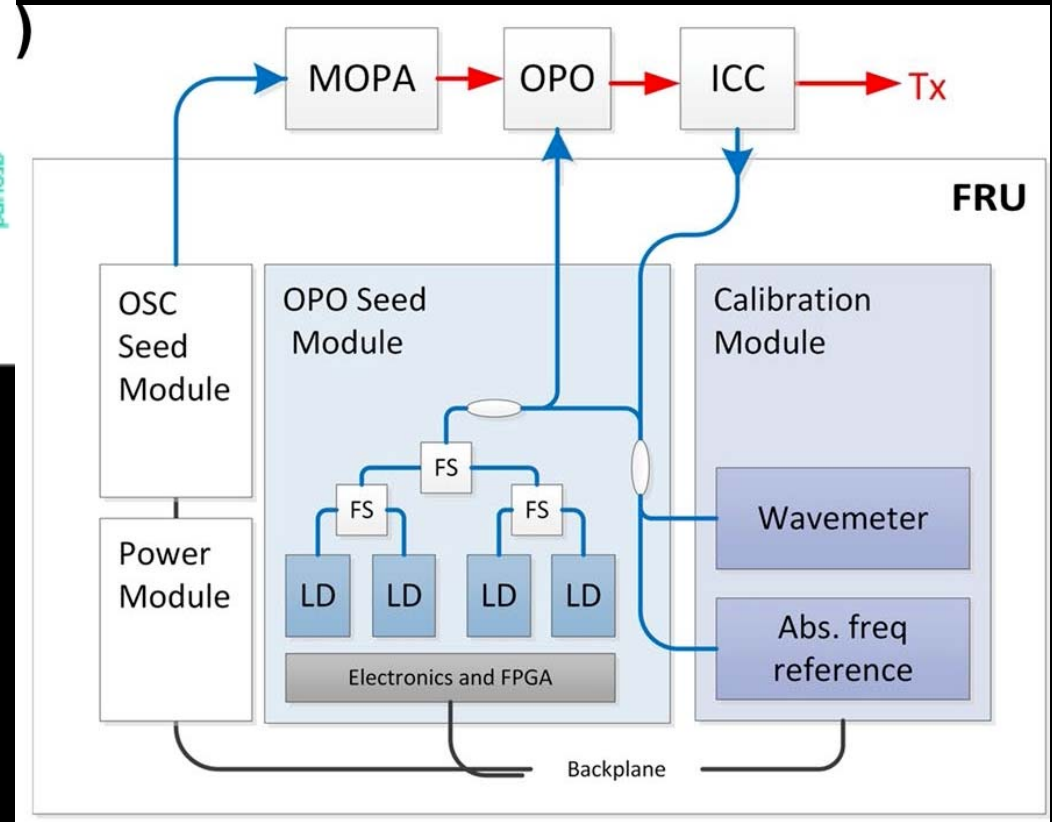
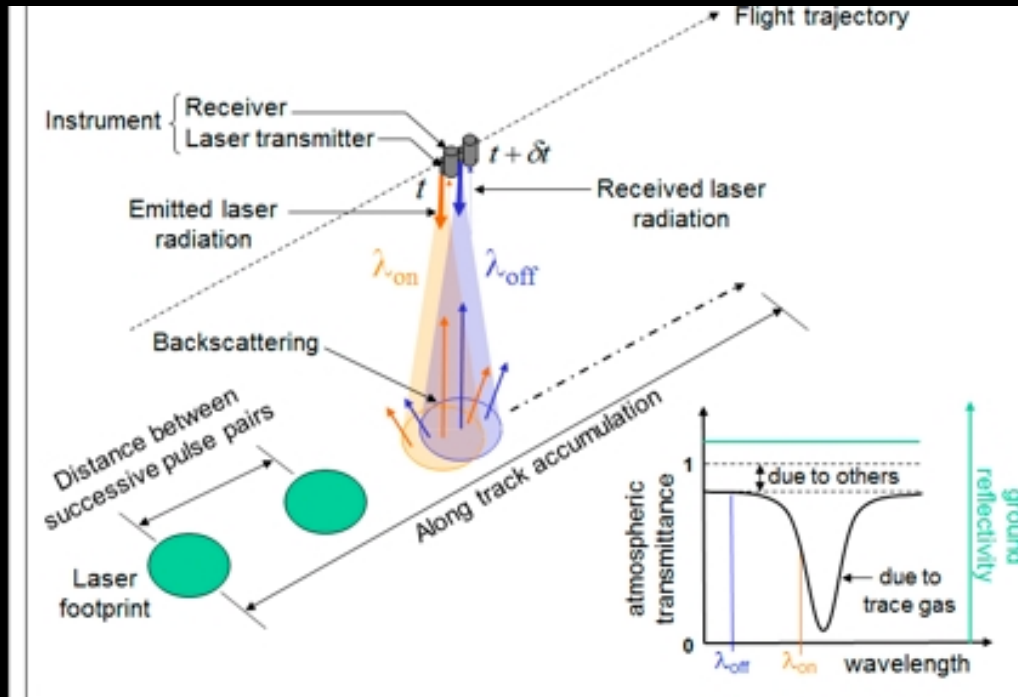
250A/100V 10 ppm Current Source for Proton Cyclotron Bumper Magnets

- 10 ppm precision for static currents.
The board is heated up to 52 degC using two internal 0.1 mm copper layers.
- Current slope for the bumper magnets.



MERLIN FRU

MERLIN Laser Frequency Reference Unit - A3PE3000



Links

microCore is available on git:

<https://github.com/microCore-VHDL>

and here is documentation:

<https://github.com/microCore-VHDL/microCore/tree/master/documents>